



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,917	12/13/2001	John M. Bergstrom	005222.00333	2229
29638 7590 01/14/2008 BANNER & WITCOFF, LTD. ATTORNEYS FOR CLIENT NO. 005222 10 S. WACKER DRIVE, 30TH FLOOR CHICAGO, IL 60606			EXAMINER TARAE, CATHERINE MICHELLE	
			ART UNIT 3623	PAPER NUMBER
			MAIL DATE 01/14/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/021,917	Applicant(s) BERGSTROM, JOHN M.	
	Examiner C. Michelle Tarae	Art Unit 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-11,13-24,26-34,36-44 and 46-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13-24,26-34,36-44 and 46-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 3623

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2007 has been entered.

Claims 1, 11, 24, 34 and 44 have been amended. Claims 1, 3-11, 13-24, 26-34, 36-44 and 46-54 are now pending in this application.

### ***Response to Amendment***

2. Applicant's amendments to claims 1, 11, 24, 34 and 44 are acknowledged.

### ***Response to Arguments***

3. Applicant's arguments are with regard to the newly added limitation of "combining repeated runs." Applicant's arguments are moot in view of the updated rejections below.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-11, 13-24, 26-34, 36-44 and 46-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoltners et al., "Integer Programming Models for Sales Resource Allocation" (March 1980), Dulaney et al. (U.S. 6,341,269) and in further view of "Profits per square foot for frozen 40-50% higher than grocery: Study," *Frozen Food Age*, Nov 1995 [hereinafter, Profits].

As per claim 1, Zoltners et al. discloses an apparatus that determines allocations in a business operation to maximize profit on a computer system, comprising:

a memory, a processor that accesses the memory to retrieve computer-executable instructions to perform: collecting profit data for a plurality of classes in the business operation, each class including an allocation having a cost function, each allocation belonging to the group consisting of physical allocations and economic allocations (page 1, paragraph 2; page 2, paragraphs 1 and 2; Table 1 on pages 3 and 4; page 9, last paragraph; The reference discloses allocating sales resources such as sales budgets, sales calls, sales reps, etc., among various sales entities (i.e., classes) such as sales districts, accounts, prospects, products, etc., where the allocations are made based on expected profit results and cost data for each sales entity. Products can represent classes in a business operation. The expected profit and cost are

Art Unit: 3623

subjective data input by the user. The allocations are physical (i.e., geographic regions) as well as economic (i.e., sales budgets.);

determining profit functions for the allocations from the profit data by:

determining demand distributions for the allocations from the profit data and determining each profit function from a corresponding demand distribution (page 2, paragraph 2; (M3) on page 11; Table 1; The sales response, or demand, function represents the sales tradeoff which can be expected from various resource allocation strategies.);

formulating a Multiple Choice Knapsack Problem to maximize profit from the profit functions, the cost functions, and a cost constraint ((M1) on page 9; (M3) on page 11; M1 and M3 are Multiple Choice Knapsack models that maximize the profit based on various resource allocations and cost constraints.); and

combining repeated runs of the Multiple Choice Knapsack Problem to determine values for the allocations (the illustrated applications on pages 9, 10 and 17; The Multiple Choice Knapsack model is solved for various sales resource allocation strategies such as sales representative time management and sales force resource allocation. The model is solved repeatedly to obtain a set of "best" solutions.);

While Zoltners discloses determining a model for sales resource allocation that maximizes profit using time periods and allocation strategies for sales entities, or products (page 8), Zoltners et al. does not expressly disclose that a profit function is determined for a time interval between *restocking cycles*, *a probability of finding a given number of units of the item on display* and *the spatial allotment of the item*. Dulaney et

Art Unit: 3623

al. discloses optimizing the process of determining the quantities of a product to carry on the shelf (i.e., the facings). The facing optimization process requires data such as frequency of shelf replenishment (i.e., restocking cycles), space required per item (i.e., spatial allotment), and probability of stockout, which is a probability of not having any items left on the shelf (col. 2, lines 55-67; col. 4, lines 14-24 and 30-53; col. 6, lines 2-6; col. 6, line 66-col. 7, line 4). Dulaney et al. further discloses that facing optimization is driven by several business objectives including maximizing profit (col. 7, lines 8-12). Thus, Dulaney et al. and Zoltners are analogous art in that each is concerned with product allocation decisions that will maximize profit. At the time of the invention, it would have been obvious to a person of ordinary skill in the art for the sales resource allocation for maximizing profit models of Zoltners to include the facing optimization models of Dulaney et al. as Dulaney et al.'s profit maximization models consider more detailed data (i.e., restocking cycles, spatial allotment and probability of finding a given number of units of the item on display) that enable a retailer to determine how to maximize profit at the product shelf stocking level, thereby enhancing the granularity and comprehensiveness of the profit maximization models of Zoltners. Furthermore, applying the granularity of data required by the profit maximization models of Dulaney et al. to the models of Zoltners, enhances the flexibility of the more general models of Zoltners by allowing the general models to be modified as needed to solve specific business problems.

Additionally, Zoltners does not expressly disclose the allocations being constrained by a total floor area, each class corresponding to a department of the

Art Unit: 3623

business operation. Profits discloses profit data corresponding to profit per square footage per department (page 1, lines 1-2 and 4; A study conducted on grocery stores showed that the frozen food department was more profitable per square footage compared with other departments.). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Zoltners to have profit data corresponding to profit per square footage per department because doing so provides retailers with more specific information of cost, gross margins and sales on a per square footage level of detail (page 1, lines 1-2 and 4 of Profits where certain products can be identified as more profitable per square footage compared with other products), thereby enhancing the granularity and comprehensiveness of the information provided by the profit maximization models of Zoltners, which ultimately facilitates decision makers in making profit-maximizing decisions.

As per claims 3 and 4, Zoltners et al. discloses the apparatus according to claim 1, wherein each demand distribution includes a Poisson model or a Markov model (row 4 on page 3; row 2 on page 4; The reference discloses using both Poisson and Markov models in its sales resource allocation strategies.).

As per claim 5, Zoltners et al. discloses the apparatus according to claim 1, wherein each demand distribution includes a normal distribution model (paragraph 2, page 2; row 5 on page 5; The reference discloses applying concave functions, also known as bell-curve and normal distribution models to its resource allocation strategies.).

As per claim 6, Zoltners et al. discloses the apparatus according to claim 1, wherein the allocations include spatial allotments (paragraph 1, page 2; sales representative time management and sales force resource allocation on pages 9 and 10; The reference discloses spatial allotments such as deciding how to allocate time to sales representatives or products across sales territories.).

As per claim 7, Zoltners et al. discloses the apparatus according to claim 1, wherein the allocations include monetary allotments (paragraph 2, page 1; paragraph 2, page 18; The reference discloses the decision of allocating sales budgets across products and/or markets.).

As per claims 8-10, Zoltners et al. discloses the apparatus according to claim 1, wherein the cost constraint is a greater-than-or-equal-to inequality constraint, an equality constraint or a less-than-or-equal-to inequality constraint (page 11; Model (M3) illustrates equality, greater-than-or-equal-to and less-than-or-equal-to inequality constraints.).

As per claim 54, Zoltners et al. discloses the apparatus of claim 1, wherein determining demand distributions for the allocations from the profit data comprises: modeling the demand distributions with corresponding probabilistic functions (row 1 on page 5; The reference discloses applying probability estimates to the resource allocation strategies.).

As per claim 55, Zoltners et al. does not expressly disclose the apparatus of claim 1, wherein the probability corresponds to finding any number of units of an item on a store shelf. Dulaney et al. discloses determining the probability of stockout, which is a



Art Unit: 3623

probability of not having any items left on the shelf (col. 6, lines 2-6; col. 6, line 66-col. 7, line 4). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the demand probability functions in the more general profit maximizing models of Zoltners et al. to a more specific probability such as finding any number of units of an item on a store shelf as taught by Dulaney et al. because doing so allows the models of Zoltners et al. to maximize profit for inventory replenishment at the product shelf stocking level, thereby enhancing the granularity and comprehensiveness of the profit maximization models of Zoltners.

Claims 11, 13-24, 26-34, 36-44 and 46-53 recite substantially similar limitations to claims 1, 3-10, 54 and 55 above. Therefore, claims 11, 13-24, 26-34, 36-44 and 46-53 are rejected on the same basis as claims 1, 3-10, 54 and 55 above.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Michelle Tarae whose telephone number is 571-272-6727. The examiner can normally be reached Monday – Friday from 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz, can be reached at 571-272-6729.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Application/Control Number: 10/021,917  
Art Unit: 3623

Page 9

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*C. Michelle Tarae*  
C. MICHELLE TARAE  
PRIMARY EXAMINER  
AV 3623

January 6, 2008